March 19, 1929. M. W. FELVER ET AL 1,705,755

COIN CONTROLLED DISPENSING MECHANISM FOR VISIBLE PUMPS

Filed May 16, 1927 4 Sheets-Sheet 1

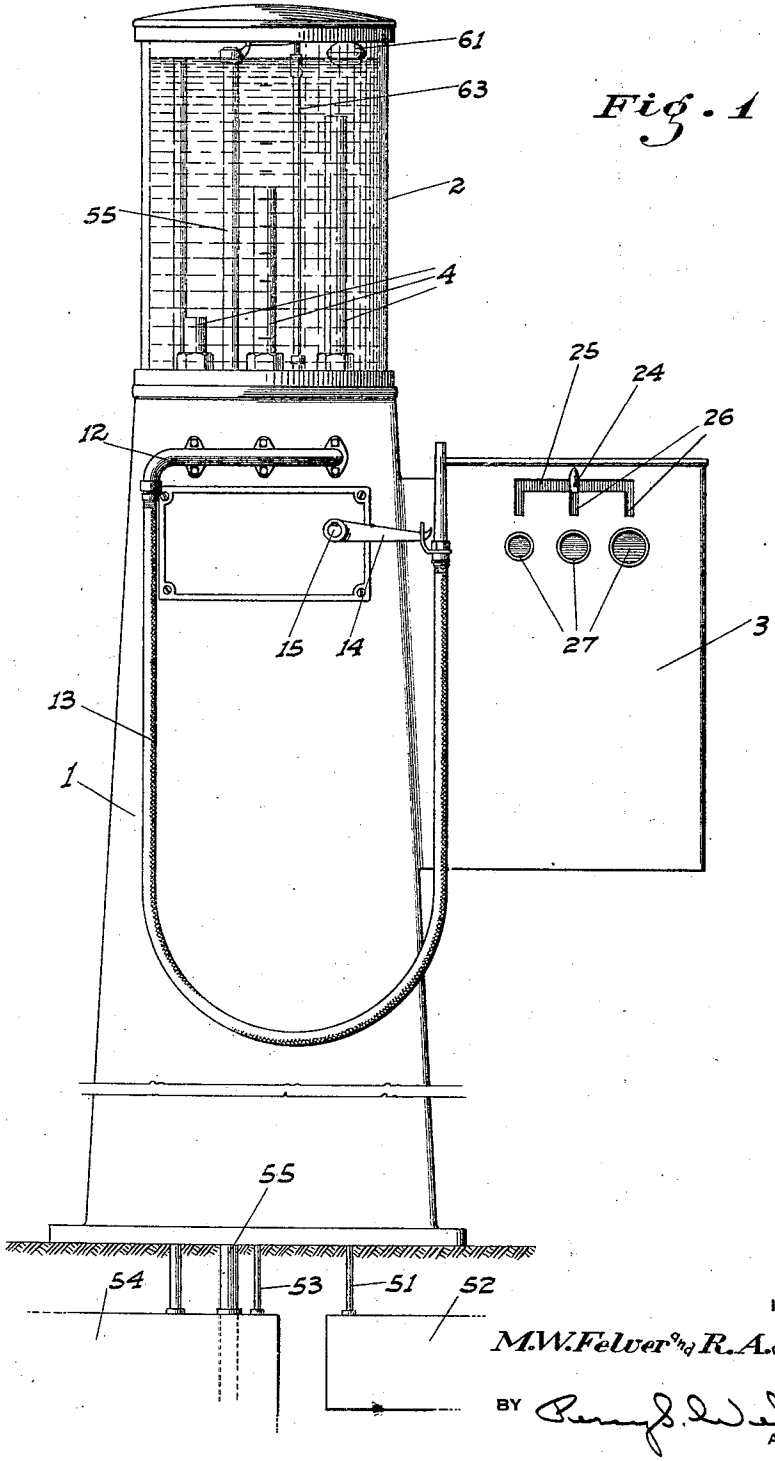


Fig. 1

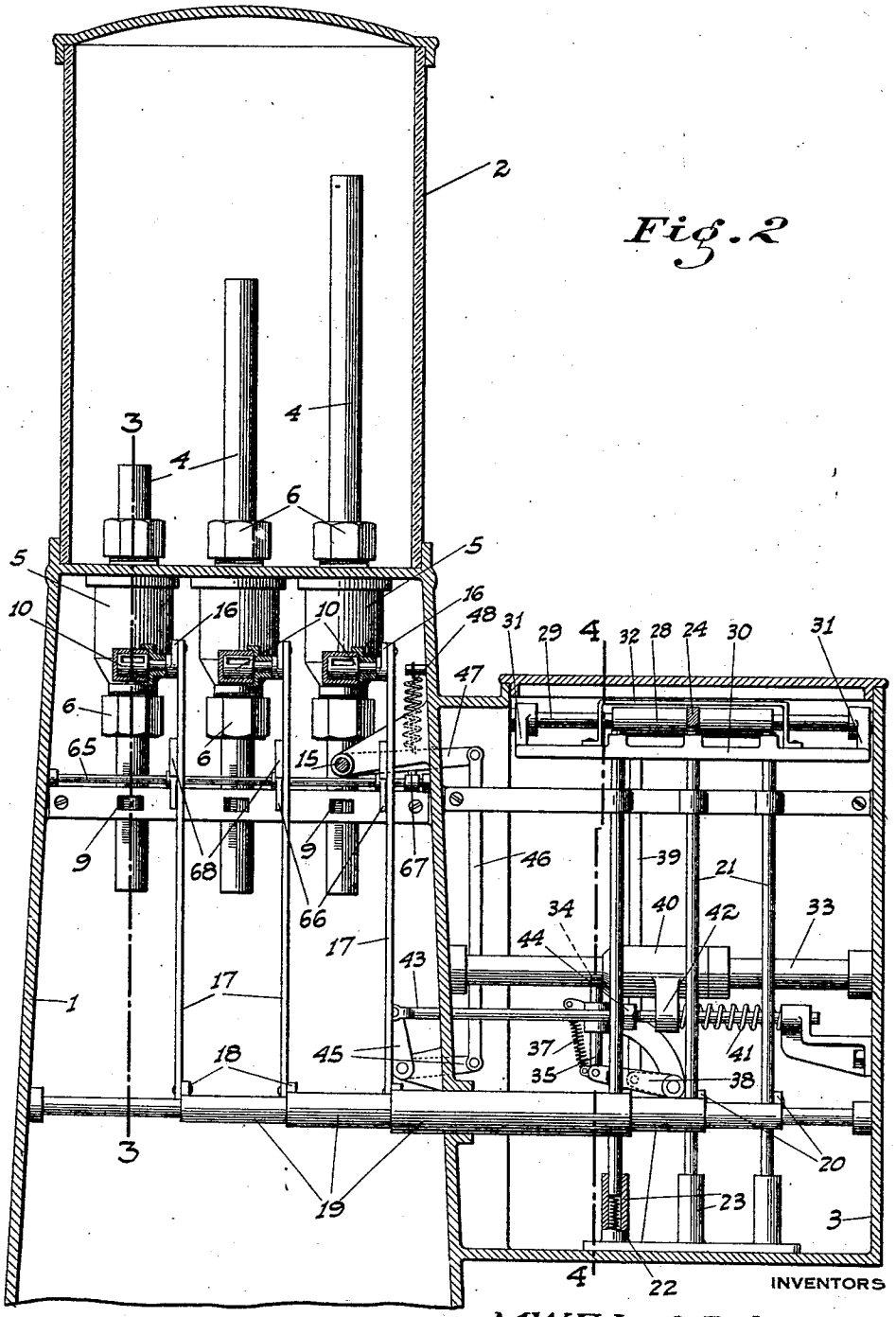
INVENTORS
M.W.Felver and R.A.Johnson
BY
ATTORNEY

March 19, 1929. M. W. FELVER ET AL 1,705,755

COIN CONTROLLED DISPENSING MECHANISM FOR VISIBLE PUMPS

Filed May 16, 1927 4 Sheets-Sheet 2

Fig. 2



INVENTORS

M. W. Felver and R. A. Johnson

BY

ATTORNEY

March 19, 1929. M. W. FELVER ET AL 1,705,755

COIN CONTROLLED DISPENSING MECHANISM FOR VISIBLE PUMPS

Filed May 16, 1927. 4 Sheets-Sheet 3

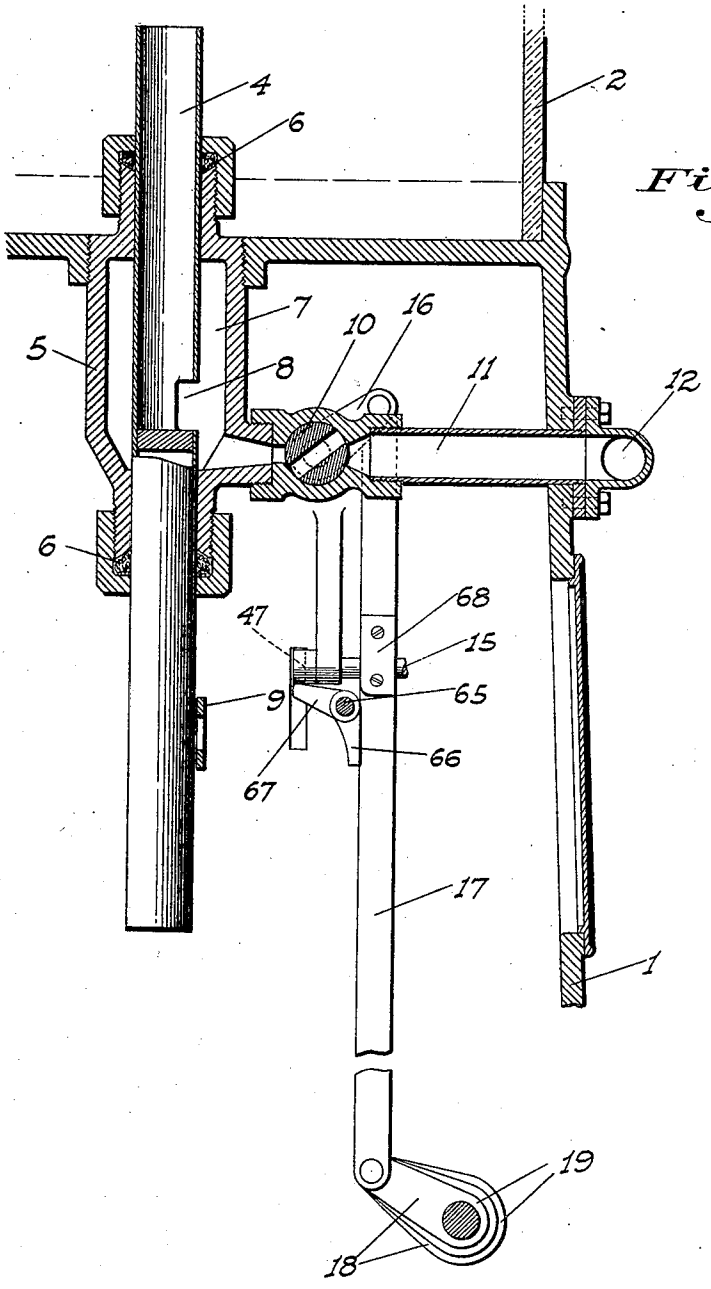


Fig. 3

INVENTORS

M.W. Felver and R.A. Johnson

BY

ATTORNEY

March 19, 1929. M. W. FELVER ET AL 1,705,755

COIN CONTROLLED DISPENSING MECHANISM FOR VISIBLE PUMPS

Filed May 16, 1927 4 Sheets-Sheet 4

Fig. 5

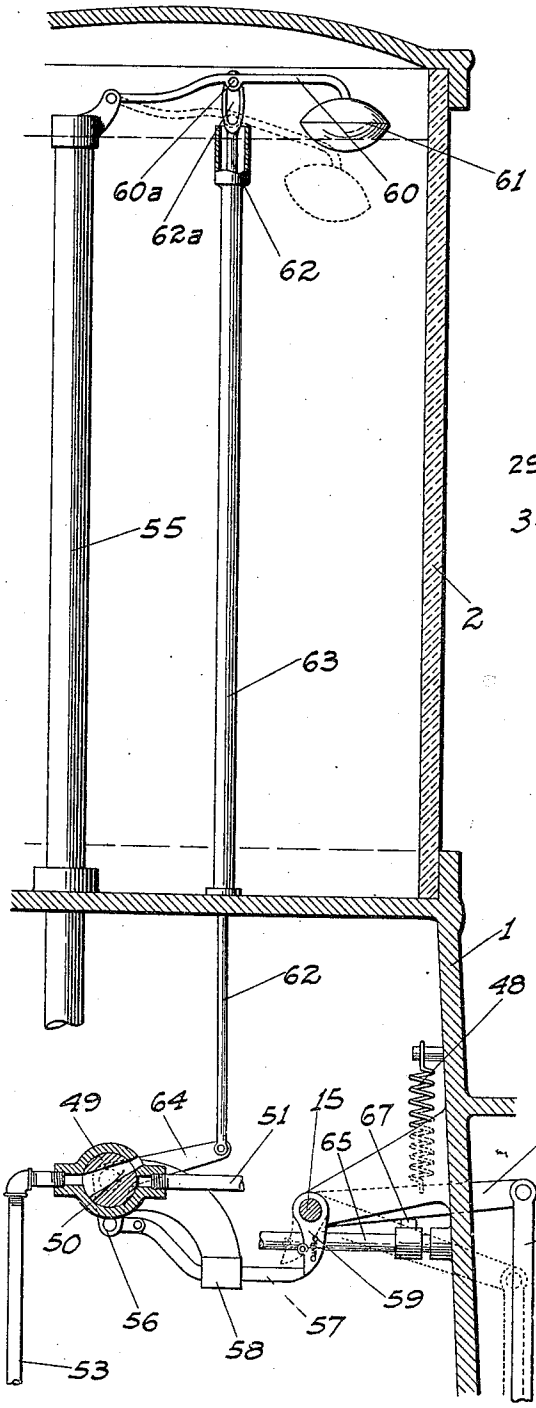
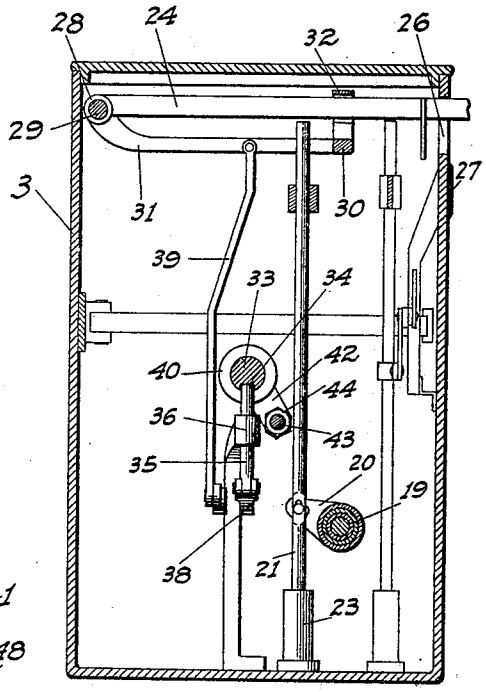


Fig. 4



INVENTORS
M. W. Felver and R. A. Johnson

BY
ATTORNEY

Patented Mar. 19, 1929. 1,705,755

UNITED STATES PATENT OFFICE.

MINOR W. FELVER AND RAYMOND A. JOHNSON, OF DELANO, CALIFORNIA.

COIN-CONTROLLED DISPENSING MECHANISM FOR VISIBLE PUMPS.

Application filed May 16, 1927. Serial No. 191,710.

This invention relates to liquid dispensing apparatus and particularly to a device for dispensing gasoline and like products from the so-called visible type pumps, which include a raised transparent receptacle from which the liquid is dispensed by gravity and which is refilled by various means, usually air pressure acting on a supply of liquid in an enclosed reservoir.

The present invention makes use in part of the mechanism shown in our co-pending application for patent, Serial No. 154,682, filed December 14th, 1926; and our principal objects now are to provide in connection with a gravity feed container, a coin controlled means for causing an amount of liquid to be dispensed corresponding to the value of the coin deposited upon the depression of the control lever; and for causing the refill valve to be automatically opened when the hose is replaced on a depressible supporting hook or the latter is depressed by hand; for causing such depression of the hook to prevent further dispensing of the liquid until another coin has been deposited; and for causing said valve to be automatically closed as soon as the container is filled, without any movement of said hook being necessary.

These objects we accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Fig. 1 is a side elevation of our improved apparatus showing the hose as supported on the depressible hook member.

Fig. 2 is a sectional elevation of the apparatus, the parts being in the positions occupied when the hose is removed from the depressible hook.

Fig. 3 is a vertical fragmentary transverse section on the line 3—3 of Fig. 2, showing one of the liquid dispensing units.

Fig. 4 is a transverse section of the coin controlled unit actuating mechanism taken on the line 4—4 of Fig. 2.

Fig. 5 is an enlarged fragmentary sectional elevation showing the refill valve and its operating mechanism, said valve being shown in its closed position with the container filled and with the hose removed from the supporting hook.

Referring now more particularly to the characters of reference on the drawings, the structure comprises a hollow base or standard 1 of suitable height surmounted by a transparent liquid container 2 of suitable capacity. Mounted in connection with the standard to one side of the same is a casing 3 containing the coin controlled actuating mechanism.

Projecting upwardly from the bottom of the container is a plurality of open topped tubes 4 arranged in alined and spaced relation. There are preferably three tubes employed which project upwardly into the container different distances, so that correspondingly different quantities of liquid will be dispensed from the container by gravity when the various tubes are opened. The tubes project through sleeves 5 mounted in and depending from the bottom of the container, said sleeves at their ends having liquid tight stuffing glands 6 and between said glands being larger than the tubes to form enclosed chambers 7 thereabove. The tubes have openings 8 in their sides communicating with the respective chambers, being closed below said openings. The tubes are longitudinally adjustable in the sleeves to compensate for any fluctuation in the price of the liquid, so as to enable the proper quantity and value to be dispensed at all times with the depositing of coins in the apparatus of the same fixed values.

To enable such adjustment to be accurately carried out the tubes below the sleeves are graduated and vernier scales 9 are arranged in connection with the graduations.

Projecting from the various sleeves just above the lower stuffing glands are valves whose rotors 10 are adapted to establish communication between the chambers 7 and pipes 11 which deliver into a common manifold 12. One end of the manifold is connected to a dispensing hose 13 of suitable length, the free or nozzle end of which is adapted to be normally supported by a depressible hook-arm 14 mounted on a turn-

able shaft 15 which projects into the standard 1. The purpose of this depressible arm will be shown later.

The valve rotors are provided with radial arms 16 from which operating rods 17 depend. The rods are connected to radial arms 18 projecting from superimposed sleeves 19 turnable one on the other individually. These sleeves project into the casing 3 and carry on their adjacent ends radial arms 20 which are operatively connected with vertical rods 21 slidably mounted in the casing. These rods are normally held raised by springs 22 mounted in the rod guides 23 in the bottom of the casing and into which the rods project. When the rods are in this position the valve rotors are turned to a closed position, as shown in Fig. 3. The rods 21 are selectively depressed so as to cause the corresponding valves to be turned to open positions by a hand lever 24 mounted in the casing 3 above the rods and projecting from the casing through a horizontal slot 25 in the front face thereof. Vertical slots 26 transversely alined with the rods 21 depend from and communicate with the slot 25, so as to enable the lever to be depressed the necessary distance only when said lever is directly over the different rods. Coin openings 27 to receive coins of different value are cut in the casing under the slots 26, the largest of the openings of course being under that one of said slots in which the depression of the lever will cause the opening of that one of the valves 10 which controls the shortest one of the tubes 4, and consequently to cause the greatest volume of liquid to be dispensed from the container. The inner end of the lever is provided with a long transversely extending sleeve 28 which is slidable on a horizontal shaft 29 mounted in the back of the casing, so as to enable the lever to be moved lengthwise of the slot 25 (which is parallel to the shaft 29) without any tendency for said lever to bind laterally. This mounting of the lever also enables the same to be depressed at its outer end when alined with the vertical slots 26.

Any suitable form of coin controlled mechanism, to prevent the depression of the lever in any slot until a coin of proper value has been deposited in the corresponding coin opening, is mounted in connection with each such opening and lever. The mechanism preferably employed for this purpose is such as shown in connection with our co-pending application above mentioned.

Mounted in connection with and under the lever is a depressible horizontal bar 30 extending lengthwise of the path of lateral travel of the lever along the slot 25 so as to be engaged by said lever at any position of the latter. This bar is turnably supported from the shaft 29 by arms 31 disposed beyond the path of movement of the sleeve 28. A guide member 32 mounted on the bar prevents vertical movement of the lever independent of the bar except to a slight extent.

Mounted in the casing 3 under the bar is a fixed shaft 33 having a recess or socket 34 in its bottom to receive a vertical pin 35 slidably mounted in a fixed support 36 under said shaft. The pin is normally held raised and engaged with the socket by a spring 37 and at its lower end is connected to one end of a horizontal arm 38 which is pivoted in a fixed position at its opposite end. A vertical rod 39 is operatively connected to the bar 30 and to the arm 38 in such a manner that when the bar is depressed by depression of the lever 24, said arm 38 will be depressed and the pin 35 will be drawn clear of the shaft socket.

Slidable on the shaft 33 is a sleeve 40, one end of which is normally pressed against the pin by a spring 41. When the pin is withdrawn from its socket the sleeve moves along the shaft to cover said socket, thus preventing the pin from reentering the same. Since the pin is directly connected to the bar 30 by the arm and rod connections, and the lever 24 is prevented from moving upwardly relative to said bar by the guide 32, it will be seen that when the lever is depressed in any slot 26, it cannot again be raised and shifted to another slot until the sleeve 40 is moved clear of the pin socket.

This can be done at any time by depressing the hook arm 14, either by hand or by hanging the hose thereon. Since the lever when once raised to its normal position cannot again be depressed until another coin is inserted in one of the coin openings, said hook arm should of course not be thus moved until the desired amount of liquid has been dispensed from the container. Otherwise the purchaser of course will not be able to obtain his money's worth. The structure for carrying out this operation is arranged as follows:

The sleeve 40 has a lug 42 projecting laterally therefrom, which is slidable over a horizontal rod 43 extending parallel to the shaft 33 and which, when the sleeve is over the pin socket, abuts against a stop member 44 fixed on the said rod. The rod 43 is connected at one end to one arm of a bellcrank 45, the other arm of which is connected to one end of a vertical rod 46. This rod at its upper end is connected to a horizontal arm 47 mounted on the other arm shaft 15 and extending in the same direction as said hook arm. A spring 48 acts on the arm 47 to hold the same and consequently the hook arm in a raised position, the spring being overcome by hand pressure or by the weight of the hose on said arm. These parts are so connected that when the spring is free to function the stop 44 will be positioned

so that the sleeve 40 can move to cover the pin socket. When the arm 14 is depressed the bellcrank 45 is turned so that the lug 42 (when the sleeve is in said socket cover position) will be engaged by the stop 44 and the sleeve will then be forced along the shaft 33 clear of the socket. The spring 37 will then act to cause the pin to reenter the socket, releasing the lever 24 and allowing the same to rise clear of which ever slot 26 it had previously occupied. This permits the spring 22 of whichever one of the rods 21 had been depressed, to function also and said rod will be raised and the corresponding valve 10 closed.

Depression of the hook arm also causes a valve which controls the refilling of the container to open by means of the following structure.

Mounted in the standard 1 is an air valve whose rotor 49 has a passage 50 to establish communication between an air pipe 51 leading from a compressed air tank 52, and an air pipe 53 leading to an enclosed tank or reservoir 54 in which a suitable supply of the liquid is maintained. We have shown both tanks as being disposed beneath the standard but this position of course can be altered. A pipe 55 leads from the tank 54 upwardly through the container 2 to a point near the top thereof. Said pipe is open at both ends so that if the air valve is open to admit air under pressure to the tank 54, the liquid will be forced upwardly in the pipe from the tank to discharge into and fill the container.

A radial arm 56 connected to the rotor 49 has a link rod 57 connected thereto and extending at a suitable angle, said rod being slidable in a fixed bearing 58. Depending from and fixed on the shaft 15 is a knuckle or break-jointed pawl 59, abutting against the outer end of the rod 57 and disposed substantially at right angles to said rod when the arm 47 is held raised by the spring 48 and the valve is in its closed position. When the arm 47 is depressed by depression of the hook arm 14, the rod 57 is pushed along by the pawl 59 until the valve is its open position, when the pawl clears and moves past the rod as shown in dotted lines in Fig. 5. The valve will then remain open until automatically closed by the refilling of the container by means of the following arrangement:

Pivotally mounted in the container adjacent the top thereof is an arm 60 to the free end of which is attached a float 61 arranged to ride on the surface of the liquid as it nears its full level in the container. A vertical rod 62 in the container has a longitudinal slot 62^a at its upper end engaged by a pin 60^a in the float arm. The length of this slot is sufficient to permit of the downward movement of the float arm when the supply of liquid is lowered, without imparting downward movement to said rod. This rod is guided by a tube 63 in the container which extends from a point above the full liquid level through the bottom of the container. At its lower end said rod is connected to a radial arm 64 connected to the valve rotor 49. These parts are so connected that when the valve is closed the rod 62 is raised and when the valve is turned to an open position, said rod will be lowered. Therefore when the liquid has been dispensed from the container and the float arm has been lowered, said rod 62 will remain in its raised position until lowered by the turning of the valve rotor to its open position by the depression of the hook arm. The upper end of the slot 62^a is then adjacent the pin 60^a of the depressed arm 60 so that when the arm again lifts with the lifting of the float, the rod 62 will be lifted also and the valve returned to its closed position. The arm 47 may remain depressed or not during this operation, since if the pressure holding the same depressed is removed, the pawl 59 will break at its joint and pass freely by the rod 47, even if the latter has again moved to its original position and is in the path of said pawl.

As previously stated, depression of the hook-arm causes the lever 24 to be released and to move to an operative position. This however is provided that no pressure is exerted to hold the lever down, which would prevent the pin 35 and associated parts from moving upwardly even if the sleeve 40 were moved clear of the socket for the pin, as it would be with the depression of the hook arm. This would permit an unscrupulous person to hold the lever depressed, and a discharge valve open, and at the same time also depress the hook arm to cause the tank to refill, so that a continuous flow through the open discharge valve and the dispensing hose could be had. In order therefore to prevent the hook arm from being depressed (and the refill valve opened) as long as the control lever 24 is depressed and a discharge valve is open we provide the following means:

Mounted in the base 1 and extending across the various valve operating rods 17 is a horizontal shaft 65. Fixed on and depending from this shaft adjacent and to the sides of the rods are arms 66, while a single substantially horizontal arm 67 also mounted on said shaft normally projects under the arm 47 in close relation thereto. Fixed on the rods 17 and projecting from the same side thereof as the arms 66 are vertical abutment blocks 68. These blocks are normally disposed above said arms when the rods are raised and the valves are closed, but when any rod is lowered to open the corresponding valve, the abutment on the rod moves down in front of the path of

turning movement of the adjacent arm 66, preventing the said arm from moving and the shaft 65 from turning. When the rods are raised therefore, the arm 47 (which controls the opening of the refill valve) can be depressed, since the arms 66 are free to turn under the blocks. When any rod is lowered, however, the adjacent arm 66 cannot move as above stated, and consequently the arm 67 cannot move down nor can the arm 47 be depressed.

From the foregoing description it will be readily seen that we have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described our invention what we claim as new and useful and desire to secure by Letters Patent is:

1. A liquid dispensing apparatus including a raised liquid container, a plurality of open-topped tubes projecting upwardly into the container for different distances, independent control valves for said tubes, means normally holding the valves closed, a single manually operable lever permanently mounted on the apparatus, and means between the valves and lever for enabling the latter to be selectively placed in operative relation with any valve to open the same.

2. A liquid dispensing apparatus including a raised liquid container, a plurality of open-topped tubes projecting upwardly into the container for different distances, independent control valves for said tubes, means normally holding the valves closed, a depressible lever permanently mounted on the apparatus selectively movable to a number of different positions without being depressed, and operating means for the valves including rods positioned to be engaged by the lever when the latter is moved to such positions.

3. A liquid dispensing apparatus including a container, delivery passage means from the container, a control valve for said passage means, refill means for the container including a valve, said valves being normally closed, hand means for opening the control valve, means tending to close said valve, manual means for opening said refill valve, and means between said hand and manual means for enabling the control valve closing means to function only when said refill valve is opened.

4. A liquid dispensing apparatus including a container, delivery passage means from the container, a control valve for said passage means refill means for the container including a valve, said valves being normally closed, hand means for opening the control valve, manual means for opening the refill valve, and means preventing the control valve after having been once opened, from closing until said refill valve is opened.

5. A liquid dispensing apparatus including a container, delivery passage means from the container, a control valve for said passage means, refill means for the container including a valve, said valves being normally closed, hand means for opening the control valve, releasable means then holding said valve open manually operable means for opening the refill valve, and means functioning with the opening of said refill valve for releasing said holding means.

6. A liquid dispensing apparatus including a container, delivery passage means from the container, a control valve for said passage means, refill means for the container including a valve, said valves being normally closed, hand means for opening the control valve, releasable means then holding said valve open, a depressible arm, means between said arm and the refill valve for causing the latter to be opened by the depression of said arm and means between said arm and the holding means for releasing the latter when said arm is depressed.

7. A liquid dispensing apparatus including a container, a delivery passage therefrom, a normally closed control valve in the passage, means for opening the valve including a longitudinally movable rod, refill means for the container including a normally closed valve, means for opening the valve including a depressible arm, a bellcrank pivoted in a fixed position with respect to the arm; one leg of said bellcrank being positioned to be engaged and swung by the depression of the arm and the other leg of the bellcrank being positioned to then move adjacent and past one side of the rod, and a block fixed on said side of the rod and positioned to project into the path of said other leg of the bellcrank to prevent movement thereof when the rod is moved to open the passage control valve.

8. A liquid dispensing apparatus including a liquid container, means for dispensing liquid therefrom, including a normally closed valve, means for opening the valve, a hose leading from said dispensing means, refill means for the container including a normally closed valve, a depressible arm outside the container adapted to support and be depressed by the weight of the free end of the hose, means actuated by such depression for opening the refill valve, means tending to close the dispensing valve and means also actuated by the depression of said arm for enabling said valve opening means to function.

9. A liquid dispensing apparatus includ-

ing a raised liquid container, a plurality of open-topped tubes projecting upwardly into the container for different distances, independent control valves for said tubes, means normally holding the valves closed, a depressible lever selectively movable to a number of different positions, operating means for the valves including rods positioned to be engaged by the lever when the latter is moved to such positions, a depressible arm, and means between said arm and the lever for preventing said lever, after having been once depressed, from being retracted until said arm is depressed.

In testimony whereof we affix our signatures.

MINOR W. FELVER.
RAYMOND A. JOHNSON.